REMARKS

Applicants note the filing of an Information Disclosure Statement herein on September 16, 2003 and note that no copy of the PTO-1449 was returned with the outstanding Office Action. Applicants respectfully request that the information cited on the PTO-1449 (which is the same as that of record to that date in the parent application hereto) be made of record herein.

The Office Action mailed October 21, 2003, has been received and reviewed. Claims 1 through 14 and 16 through 29 are currently pending in the application. Claims 1 through 14 and 16 through 29 stand rejected. Applicants have amended claims 21, 23 and 24 and respectfully request reconsideration of the application as amended herein.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 5,135,485 to Cohen et al. in view of U.S. Patent No. 4,601,201 to Oota et al.

Claims 1 through 6, 13, 14, 16, 17 and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cohen et al. (U.S. Patent No. 5,135,485) in view of Oota et al. (U.S. Patent No. 4,601,201). Applicants respectfully traverse this rejection, as hereinafter set forth.

> M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:
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> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 1-6, 13, 14, 16, 17 and 20 are improper because the Office has apparently misunderstood the teachings of the Oota et al. reference.

With respect to claim 1 and as noted in Applicants' last response, contrary to the Examiner's assertion, the electrodes 10, 12 of Cohen et al. do not have a majority of their respective areas horizontally *and* vertically offset from each other. Using the Cohen et al. drawing figures relied upon by the Office as examples, it can be seen that, in FIG. 2, electrodes 10 and 12 are vertically offset (one above the other) but are, in major part, horizontally overlapping. Claim 1 requires that a majority of the electrode areas be both horizontally *and* vertically offset. Similarly, FIG. 7 of Cohen et al. illustrates electrodes 10, 12 which are horizontally offset (side by side) but are, in major part, vertically overlapping. Thus, in one embodiment of Cohen et al. the electrodes are vertically offset and in another embodiment, they are horizontally offset, but in *no* embodiment are a majority of the respective areas of the electrodes both vertically *and* horizontally offset from one another. The Office also points to FIG. 3 of Cohen et al., but FIG. 3 is substantially similar to FIG. 2 and affords no additional teaching. Moreover, the Office has not identified any motivation or suggestion within Cohen et al. to *combine* the embodiments of FIGS. 2 and 7. With respect to Oota et al., the Office is misreading the teachings thereof. First, contrary to the assertion in the Office Action, there are not electrodes placed "where a majority of their areas are vertically and horizontally offset (zig-zagged) from each other (Figure 1A)." As noted in Col. 3, lines 50-54 and Col. 4, lines 34-68 (with respect to FIGS. 2A and 2B), the segmented electrodes $21a - 21n$ are part of the **same electrode** of a pair of electrodes. In other words, printed substrate 20 and electrodes 21 thereon comprise a segmented inner electrode, the segments of which do not cooperate with each other to provide a capacitance-based output. Rather, each given segment of electrodes $21a - 21n$ individually cooperates with another, outer electrode 14. The other, outer electrode 14 (see Col. 3, line 65 through Col. 4, line 10) is a metallic pipe that extends substantially the entire length of inner printed circuit 20 and electrodes $21a - 21n$. Thus, outer electrode 14 vertically overlaps *all* of electrodes $21a - 21n$. Applicants also note that outer electrode 14 is in contact with the fluid within tank RS on both the exterior of electrode 14 and the interior thereof, through holes 14'. Oota et al. provides signals of liquid level in tank RS by virtue of the capacitance between one of the inner electrode segments electrodes $21a - 21n$ and a laterally adjacent portion of outer electrode 14, *not* between two of the inner electrodes $21a - 21n$ (Col. 5, lines 19-22). Therefore,

Oota et al. fails to address the deficiencies in Cohen et al. due to the lack of vertically *and* horizontally offset electrodes and because outer electrode 14 is not "in isolation from the interior volume of the container" as required by claim 1. Moreover, due to the difference in structure and mode of operation between Cohen et al. and Oota et al., there would be no reasonable expectation of success of making the asserted combination. Accordingly, the rejection is unsupported by the attempted combination of references and Applicants respectfully request that it be withdrawn.

Claims 2, 3 and 4 are allowable as depending from claim 1 and further because the combination of references fails to teach or suggest all the claim limitations, for the reasons set forth above with respect to claim 1. Applicants note that the limitations of each of claims 2, 3 and 4 must be read in addition to those of claim 1 from which each depends, and not in isolation.

Claims 5, 6 and 13 are allowable as depending from claim 1.

Claim 14 is allowable as depending from claim 1 and further because the combination of references fails to teach or suggest all the claim limitations, for the reasons set forth above with respect to claim 1. Applicants note that the limitations of claim 14 must be read in addition to those of claim 1 from which each depends, and not in isolation.

Claims 16, 17 and 20 are allowable as depending from claim 1.

Obviousness Rejection Based on U.S. Patent No. 5,135,485 to Cohen et al. in view of U.S. Patent No. 4,601,201 to Oota et al. as applied to claim 1 above, U.S. Patent No. 4,201,085 to Larson

Claims 7, 8 and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cohen et al. (U.S. Patent No. 5,135,485) in view of Oota et al. (U.S. Patent No. 4,601,201) as applied to claim 1 above, Larson (U.S. Patent No. 4,201,085). Applicants respectfully traverse this rejection, as hereinafter set forth.

The 35 U.S.C. § 103(a) obviousness rejections of claims 7, 8 and 12 are improper because Larson fails to remedy the deficiencies of Cohen et al. and Oota et al. with respect to the latter's failure to meet the claim limitations of claim 1, from which claims 7, 8 and 12 each respectively depend. Thus, the combination of references fails to teach or suggest all of the claim

limitations, as required. Accordingly, claims 7, 8 and 12 are not obvious over the combination of Cohen et al., Oota et al. and Larson.

Obviousness Rejection Based on U.S. Patent No. 5,135,485 to Cohen et al. in view of U.S. Patent No. 4,601,201 to Oota et al. as applied to claim 1 above in view of U.S. Patent No. 5,406,843 to Hannan et al.

Claims 9 through 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cohen et al. (U.S. Patent No. 5,135,485) in view of Oota et al. (U.S. Patent No. 4,601,201) as applied to claim 1 above in view of Hannan et al. (U.S. Patent No. 5,406,843). Applicants respectfully traverse this rejection, as hereinafter set forth.

Once again, Applicants respectfully assert that the Office has misinterpreted the Hannan et al. reference. Specifically, Col. 9, lines 63-66 discloses providing a *timing* signal of about 2-8 Mhz to controller 16 to time its operation which, as noted at Col. 7, lines 7-37, cited by the Office, consists of "short duration DC pulses" and *not* an oscillating signal. The Col. 5 and Col. 7 citations referenced by the Office do not support the providing of an *oscillating input signal* as required by each of claims 9, 10 and 11 each require providing an oscillating signal to one of the first and second electrodes. Thus, in addition to not remedying the deficiencies of Cohen et al. and Oota et al. with respect to claim 1, Hannan et al. does not, in fact, provide a teaching or suggestion of the limitations respectively set forth in each of claims 9,10 and 11. Moreover, there is no suggestion or motivation in either of the references, or in the art as a whole, to make the attempted combination since Cohen et al. as well as Oota et al. appear to use an oscillatory input signal while Hannan et al. uses a pulsed input signal and the methods of detection and analysis of the output signals of each of the references are quite different.

Obviousness Rejection Based on U.S. Patent No. 5,135,485 to Cohen et al. in view of U.S. Patent No. 4,601,201 to Oota et al. as applied to claim 1 above, U.S. Patent No. 3,939,360 to Jackson

Claim 18 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cohen et al. (U.S. Patent No. 5,135,485) in view of Oota et al. (U.S. Patent No. 4,601,201) as applied to claim 1 above, Jackson (U.S. Patent No. 3,939,360). Applicants respectfully traverse this rejection, as hereinafter set forth.

Claim 18 is allowable as ultimately depending from claim 1. Jackson fails to remedy the deficiencies of Cohen et al. with respect to claim 1. Further, contrary to the Examiner's assertion, Jackson fails to teach or suggest a thin, insulative film mounting structure for the electrodes. Rather, the text relied upon in Jackson teaches the use of a plastic or silicone film or smearing petroleum jelly on the exterior of the intravenous bottle *before* applying the electrode assembly—so that moisture on the bottle doesn't short between the electrodes (Col. 8, lines 36-40). Thus, claim 18 is not obvious.

Obviousness Rejection Based on U.S. Patent No. 5,135,485 to Cohen et al. in view of U.S. Patent No. 4,601,201 to Oota et al. and U.S. Patent No. 3,939,360 to Jackson as applied to claim 18 above, and further in view of U.S. Patent No. 5,051,921 to Paglione

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Cohen et al. (U.S. Patent No. 5,135,485) in view of Oota et al. (U.S. Patent No. 4,601,201) and Jackson (U.S. Patent No. 3,939,360) as applied to claim 18 above, and further in view of Paglione (U.S. Patent No. 5,051,921). Applicants respectfully traverse this rejection, as hereinafter set forth.

Applicants note that Paglione employs an electrode assembly disposed within a tank, and therefore in contact with the liquid within the tank. Applicants note that this is also the case with Oota et al. (electrode 14). Cohen et al. and Jackson, to the contrary, place their electrode assemblies on the exterior of a container. Thus, the operative measuring technique is different in Paglione than in the two other references, and there would be no motivation or suggestion to make the asserted combination.

Obviousness Rejection Based on U.S. Patent No. 5,135,485 to Cohen et al. in view of U.S. Patent No. 4,601,201 to Oota et al. and U.S. Patent No. 5,406,843 to Hannan et al.

Claims 21 through 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Cohen et al. (U.S. Patent No. 5,135,485) in view of Oota et al. (U.S. Patent No. 4,601,201) and Hannan et al. (U.S. Patent No. 5,406,843). Applicants respectfully traverse this rejection, as hereinafter set forth.

With respect to claim 21 as presently amended, the combination of Cohen et al. in view of Oota et al. is deficient for the same reasons advanced previously with respect to claim 1. Similarly, Hannan et al. is deficient for the same reasons advanced previously with respect to claims 9-11. Further, as noted previously with respect to claims 9-11, there is no motivation or suggestion to make the attempted combination of references.

Claim 22 is allowable as depending from claim 21.

Claims 23 and 24 allowable because, as noted previously, Hannan et al. does not supply an oscillating signal of the claimed frequencies the capacitive structure as claimed, but rather uses a timing signal supplied *to* the controller, which in turn supplies a pulsed, short duration DC input signal to the electrodes.

Claims 25-29 are allowable as depending from claim 21.

ENTRY OF AMENDMENTS

The amendments to claims 21, 23 and 24 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search.

CONCLUSION

Claims 1-14 and 16-29 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

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